

Appl. No. 10/601,596
Amendment dated: June 20, 2006
Reply to OA of: March 21, 2006

REMARKS

This is in response to the Official Action of March 21, 2006, in connection with the above-identified application. Applicants have amended the claims of the instant application in order to more precisely define the scope of the present invention, taking into consideration the outstanding Official Action.

Specifically, Applicants have amended claim 1 to incorporate the subject matter recited in claim 13. Claim 1 now recites that the clutching mechanism is a micro/nano clutching mechanism. In light of this amendment, Applicants have canceled claim 13.

Additionally, Applicants have canceled claim 4 without prejudice or disclaimer as being directed to the non-elected species. Applicants reserve the right to file one or more divisional applications on the non-elected species at a later time.

Finally, Applicants have added new claim 14. New claim 14 recites that the supporting means of the clutching mechanism does not obstruct the deformable area when the deformable area is sunken inwardly. Support for this amendment may be found throughout the specification as originally filed, including, e.g., Figure 3. No structure inside of the supporting mechanism shown in Figure 3 (i.e., the hollow tube) obstructs the movement of the deformable area when it is sunken inwardly.

Applicants respectfully submit that all claims now pending in the instant application are in full compliance with the requirements of 35 U.S.C. §112 and are clearly patentable over the references of record.

The rejection of claims 1, 3, 5 and 6 under 35 U.S.C. §102(b) as being anticipated by Breu et al. (US Pat. No. 5,263,753) has been carefully considered but is most respectfully traversed in light of the amendments to the claims and the following comments.

Applicants wish to direct the Examiner's attention to MPEP § 2131 which states that to anticipate a claim, the reference must teach every element of the claim.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2

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USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed.Cir. 1990).

The Official Action urges that Breu discloses a clutching mechanism comprising at least one elastic layer, a flexible membrane 3, at least two protrusions 8 on the lower surface, each protrusion having a tip, a supporting mechanism 4/11 on the upper surface, and a driving mechanism 7, which may be a vacuum pump, to deform the layer. While Breu may disclose these features as urged in the Official Action, the Official Action ignores several claimed features of the present invention in setting forth the §102(b) rejection and therefore Applicants respectfully submit that a proper anticipation rejection according to the guidelines set forth in MPEP §2131 has not been established.

Firstly, Applicants note that claim 1 of instant application claims at least one elastic layer which is a thin layer with a rim area surrounding the deformable area. This element of the claimed invention can clearly be seen in, e.g., Figure 2 of the application. A deformable area 12 is located between the at least two micro pins 2, while the rim area 11 is located outside of the circumference of the hollow tube 31. This feature of the presently claimed invention is not addressed in the outstanding Official Action and Applicants respectfully submit that a careful reading of Breu reveals that this feature is not disclosed in the §102(b) reference.

The gripper described in Breu clearly shows gripping arms 8 located at the outer edge of the membrane 3, with no rim area outside the deforming area or the circumference of the support element 2. Because of this configuration, there is no location for the membrane 3 to be directly fixed to the supporting element 2/4/11, and the invention actually requires that fastening walls 10 be attached to the membrane which run vertically up the sides of the supporting element 2/4/11. Accordingly, as Breu

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clearly fails to disclose an elastic area comprising both a rim area and a deformable area, Applicants respectfully submit that Breu is incapable of properly supporting a §102(b) rejection according to the guidelines set forth in MPEP §2131. Therefore, it is respectfully requested that this rejection be withdrawn.

Further, Applicants note that claim 1 of the instant application recites that the supporting mechanism is anchored on the upper surface of the elastic layer in the rim area. This feature of the presently claimed invention is clearly illustrated at, e.g., Figure 2. The walls 32 and 33 of the supporting mechanism 31 (i.e., the hollow tube) are anchored to the upper surface of the elastic layer 1 in the rim area 11. This feature of the presently claimed invention is not addressed in the outstanding Official Action and Applicants respectfully submit that a careful reading of Breu reveals that this feature is not disclosed in the §102(b) reference.

As discussed above, Breu does not disclose a rim area portion of the membrane 3. Rather, the entire membrane 3 of Breu is the deformable area since the grippers 8 are at the very outer edge of the membrane 3. As Breu clearly fails to disclose a rim area, it naturally follows that Breu fails to disclose a supporting mechanism anchored to the elastic layer at the rim area. Furthermore, the supporting mechanism 4/11 is not anchored to the membrane 3. Rather, as discussed above, the gripper disclosed in Breu requires the presence of fastening walls 10 to surround the supporting element to keep the membrane attached to the supporting mechanism 4/11. There is no portion of Breu which would suggest the supporting mechanism 4/11 is anchored to the membrane 3. Accordingly, as Breu clearly fails to disclose a supporting mechanism anchored to the elastic layer at the rim area, Applicants respectfully submit that Breu is incapable of properly supporting a §102(b) rejection according to the guidelines set forth in MPEP §2131. Therefore, it is respectfully requested that this rejection be withdrawn.

With respect to features of the present invention recited in claim 3, the Official Action again fails to address every element recited in the claim. Specifically, the Official Action fails to address the recited feature of claim 3 that a rim of a cross section of said

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hollow tube is fixed to the rim area of the upper surface of the elastic layer. And, as with the features not addressed in claim 1, Applicants respectfully submit that a careful reading of Breu reveals that these features are not disclosed in the §102(b) reference.

Claim 3 recites not only that the supporting mechanism is a hollow tube, but also that a cross section of the hollow tube is fixed to the rim area of the elastic layer. This is clearly illustrated, as described in detail above, in Figure 2.

While Breu discloses a drive element 4 that appears to be a hollow tube, the drive element terminates above the membrane 3. The supporting element also comprises radial ducts 11, but these radial ducts cannot reasonably be interpreted as a hollow tube. Because of this configuration, i.e., a drive member suspended above the membrane, it is clearly seen that a cross section of the drive member is not fixed to the rim area of the elastic layer. Further, and as discussed above, it is impossible for Breu to disclose a cross section of a hollow tube being fixed to the rim area of the elastic layer because the membrane 3 of the gripper disclosed in Breu does not comprise a rim area. In light of the fact that Breu clearly fails to disclose a cross section of a hollow tube fixed to the rim area of an elastic layer, Applicants respectfully submit that Breu is incapable of properly supporting a §102(b) rejection according to the guidelines set forth in MPEP §2131. Therefore, it is respectfully requested that this rejection be withdrawn.

Finally, Applicants note that the subject matter recited in claim 13 has been incorporated into claim 1. Claim 1 now recites that the clutching mechanism is a micro/nano clutching mechanism. As the §102(b) rejection over Breu set forth in the Official Action is with respect to claim 1, 3, 5 and 6, it is acknowledged that the subject matter of claim 13 is not disclosed in Breu. Accordingly, the incorporation of the subject matter recited in claim 13 into claim 1 overcomes the §102(b) rejection over Breu. Applicants therefore respectfully request that this rejection be withdrawn.

The rejection of claim 2 under 35 U.S.C. §103(a) as being unpatentable over Breu as applied to claim 1 in view of Regan et al. (US Pub No. 2004/0002121) and the rejection of claim 13 under 35 U.S.C. §103(a) as being unpatentable over Breu as applied to claim 1 in view of Conway (US Pat. No. 5,538,305) have each been carefully

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considered but are most respectfully traversed in light of the amendments to the claims and the following comments.

Applicants wish to direct the Examiner's attention to the basic requirements of a prima facie case of obviousness as set forth in the MPEP § 2143. This section states that to establish a prima facie case of obviousness, three basic criteria first must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Section 2143.03 states that all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Applicants also most respectfully direct the Examiner's attention to MPEP § 2144.08 (page 2100-114) wherein it is stated that Office personnel should consider all rebuttal argument and evidence presented by applicant and the citation of In re Soni for error in not considering evidence presented in the specification.

The Official Action rejects claim 2 as being unpatentable over Breu as applied to claim 1 in view of Regan and claim 13 as being unpatentable over Breu as applied to claim 1 in view of Conway. However, as discussed in detail above, Breu fails to disclose several features of claim 1. Furthermore, Regan and Conway clearly fail to remedy the deficiencies identified above. Therefore, because neither Breu, Regan nor Conway, either standing alone or in combination, disclose or suggest every element of

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the presently recited claims, Applicants respectfully submit a proper §103(a) rejection according to the guidelines set forth in MPEP §2143 has not been established and these rejections should therefore be withdrawn.

With respect to the rejection of claim 13 (of which the subject matter recited therein has been incorporated into claim 1), Applicants specifically traverse the statement in the Official Action that because other micro grippers exist (as evidenced by the Conway reference), it would have been obvious to modify the gripper of Breu to be a micro/nano gripper. Applicants respectfully submit that the generic teaching and generalized motivation provided in the Official Action fall well short of the standard for establishing a prima facie case of obviousness. Applicants assert that developing a micro/nano clutching mechanism as claimed in the instant invention takes far more design and ingenuity than merely miniaturizing a gripper adapted for gripping medium and full size object, as is the case with the gripper disclosed in Conway. Accordingly, Applicants respectfully submit that a proper §103(a) obviousness rejection of the subject matter recited in claim 13 has not been established and should be withdrawn.

Finally, Applicants note that neither Breu, Regan nor Conway disclose the subject matter recited in new claim 14. New claim 14 recites that the supporting means does not obstruct the deformable area when the deformable area is sunken inwardly. This is seen clearly in Figure 3, wherein the deformable area is capable of being freely sucked into the hollow tube. There is no upper ceiling that obstructs the deformable area from being inwardly sucked, which therefore allows the protrusions to move together over a wide range of distance. That is to say, because there is no obstruction in the hollow tube, the range of d shown in Figure 3 may be greater.

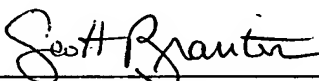
To the contrary, the radial ducts 11 shown in the gripper disclosed in Breu set a limit as to how far the member may be inwardly sucked. Correspondingly, the range of distances between the grippers 8 is reduced and very small objects cannot be gripped. Because of the obstruction above the member 3, Breu clearly fails to disclose the subject matter claimed in new claim 14 and therefore claim 14 is clearly patentable over the references of record.

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In view of the above comments, favorable reconsideration and allowance of all of the claims now present in the application are most respectfully requested.

Respectfully submitted,

BACON & THOMAS, PLLC

By: 

Scott A. Brairton
Registration No. 55,020

625 Slaters Lane, 4th Fl.
Alexandria, Virginia 22314
Phone: (703) 683-0500
Facsimile: (703) 683-1080

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